

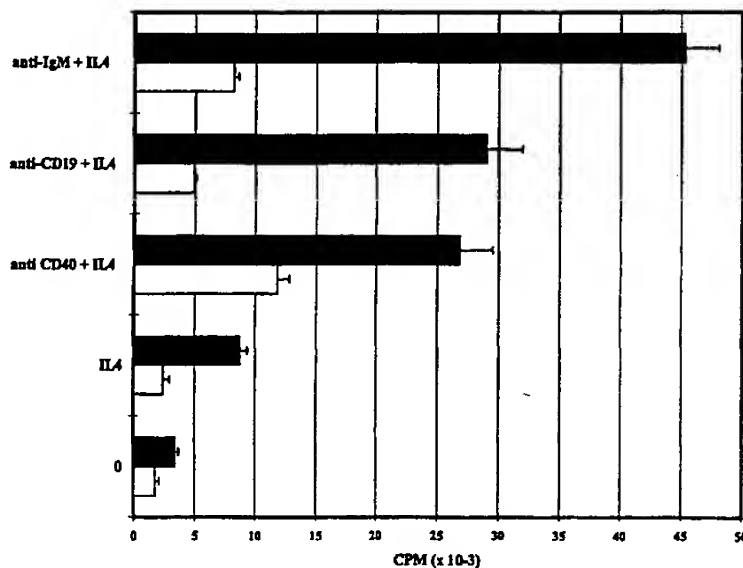
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(21) International Application Number: PCT/US00/00396 (22) International Filing Date: 7 January 2000 (07.01.00) (30) Priority Data: 09/226,533 7 January 1999 (07.01.99) US (71) Applicant: ZYMOGENETICS, INC. [US/US]; 1201 Eastlake Avenue East, Seattle, WA 98102 (US). (72) Inventors: GROSS, Jane, A.; 4224 NE 110th Street, Seattle, WA 98125 (US). XU, Wenfeng; 12432 54th Avenue West, Mukilteo, WA 98275 (US). MADDEN, Karen; 2364 Fairview Avenue East #2, Seattle, WA 98102 (US). YEE, David, P.; 640 Memorial Drive, 2West, Cambridge, MA 02139 (US). (74) Agent: LINGENFELTER, Susan, E.; ZymoGenetics, Inc., 1201 Eastlake Avenue East, Seattle, WA 98102 (US).		(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published With international search report. (88) Date of publication of the international search report: 21 September 2000 (21.09.00)

(54) Title: SOLUBLE RECEPTOR BR43X2 AND METHODS OF USING THEM FOR THERAPY



(57) Abstract

Soluble, secreted tumor necrosis factor receptor polypeptides, polynucleotides encoding the polypeptides, and related compositions and methods are disclosed. The polypeptides comprise one cysteine-rich repeat that is homologous to other tumor necrosis factor receptors, such as transmembrane activator and CAML-interactor (TACI). The polypeptides may be used for detecting ligands, agonists and antagonists. The polypeptides may also be used in methods that modulate B cell activation.

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INTERNATIONAL SEARCH REPORT

Int'l Application No

PCT/US 00/00396

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C12N15/11 C07K14/705 A61K38/17 A61K39/395

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C12N C07K A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

CHEM ABS Data, BIOSIS

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 98 39361 A (ST. JUDE CHILDREN'S RESEARCH HOSPITAL) 11 September 1998 (1998-09-11) cited in the application the whole document	56-63
X	G-U VON BÜLOW AND R J BRAM: "NF-AT activation induced by a CAML-interacting member of the tumor necrosis factor receptor superfamily" SCIENCE., vol. 278, 3 October 1997 (1997-10-03), pages 138-141, XP002140938 AAAS. LANCASTER, PA., US cited in the application the whole document	56-63

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Date of the actual completion of the international search

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 98 18921 A (HUMAN GENOME SCIENCES) 7 May 1998 (1998-05-07) cited in the application the whole document ---	1-63
A	EP 0 869 180 A (SMITH KLINE BEECHAM CORPORATION) 7 October 1998 (1998-10-07) the whole document ---	1-63
T	J A GROSS ET AL.: "TACI and BCMA are receptors for a TNF homologue implicated in B-cell autoimmune disease" NATURE., vol. 404, 27 April 2000 (2000-04-27), pages 995-999, XP002140939 MACMILLAN JOURNALS LTD. LONDON., GB ISSN: 0028-0836 the whole document -----	1-63

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 00/00396

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 9839361	A	11-09-1998	US 5969102 A AU 6685498 A EP 0964874 A	19-10-1999 22-09-1998 22-12-1999
WO 9818921	A	07-05-1998	AU 7674596 A BR 9612752 A EP 0939804 A	22-05-1998 18-01-2000 08-09-1999
EP 869180	A	07-10-1998	CA 2232743 A JP 10323194 A JP 2000060580 A	02-10-1998 08-12-1998 29-02-2000